Never stop thinking

TDA525X - UWLink© Evaluation Kit

Universal Wireless Link

TDA525X

ASK/FSK Transceiver for the ISM frequency bands of
315 MHz, 434MHz, 868 MHz and 915 MHz

User Manual

Revision 1.0, 2012-01-25

Wireless Control

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Edition 2012-01-25

Published by
Infineon Technologies AG
81726 Munich, Germany

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TDA525X UWLink Evaluation-Kit
Revision History: 2012-01-25, 1.0

Previous Revision: none

Page	Subjects (major changes since last revision)
	initial version

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1 Introduction

The **TDA525X Board** can either be used as stand-alone module (see respective data sheet) or together with the **UWLink-Adapter-Board** and the **UWLink Mainboard** as Interface to your Windows PC.

For that purpose the **TDA525X-Explorer** Windows Software may also be used to set the configuration registers and to read out the status registers of the **TDA525X** as well as of the **TDA525X**.

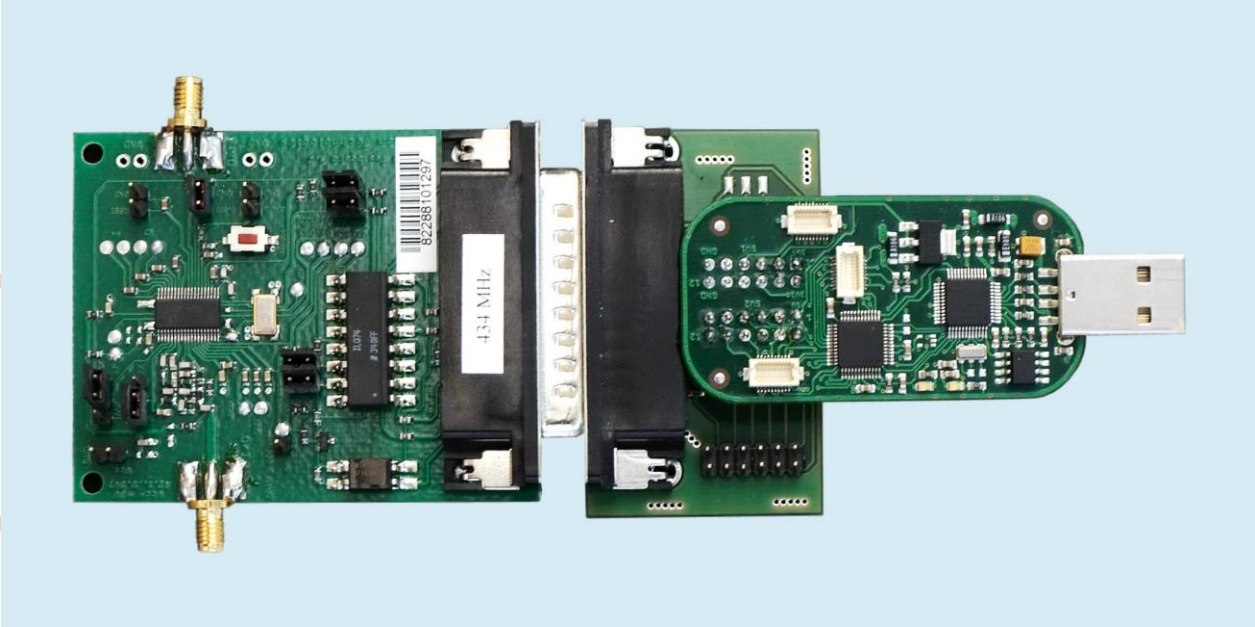

Figure 1: TDA525X-Board, -UWLink Adapter-Board, UWLink-Motherboard

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2 Using the TDA525X-Board as stand-alone module

- Leave jumper X4, X11, X12, X19 and X20 open (see Figure 2)
- Select either RX-mode or TX-mode by setting the jumper of the RX/TX-multi-pin connector (X8) accordingly (see Figure 2 below or Figure 4-4 of the respective Data-Sheet).
- Select either ASK or FSK by setting the jumper of the ASK/FSK-multi-pin connector (X7) accordingly (see Figure 2 below or Figure 4-4 of the respective Data-Sheet).
- Apply a supply voltage of 3V (2.1V to 5V) to connector X3 (for polarity see Figure 3 below or Figure 4-4 of the Data-Sheet).
- Apply an antenna or RF-signal generator on the 50 Ω RF-connector (X1; see Figure 3 below or Figure 4-4 of the the Data-Sheet) if the RX-mode is selected (via RX/TX-Jumper). Use an ASK-modulated or FSK-modulated RF-signal according the mode selected by the jumper of the ASK/FSK-multi-pin connector.
- Apply an antenna or Spectrum-Analyzer to be able to measure the spectrum, for instance, on the 50 Ω RF-connector (X1; see Figure 3) if the TX-mode is selected (via RX/TX-Jumper).
  CAUTION: Applying a signal, from a RF-signal generator for instance, in TX-mode could possibly damage the power amplifier output of the **TDA525X**!
- Connect the Data Input/Output (X2; see Figure 3) to an Oscilloscope, for instance, to be able to measure the data output signal, in case of RX-mode (via RX/TX-Jumper) is selected.
- Apply a data signal, a PRBS9-sequence or just a rectangular signal on the Data Input/Output (X2; see Figure 3) if TX-mode is selected. For data signal Low- and High-level see the Data Sheet.

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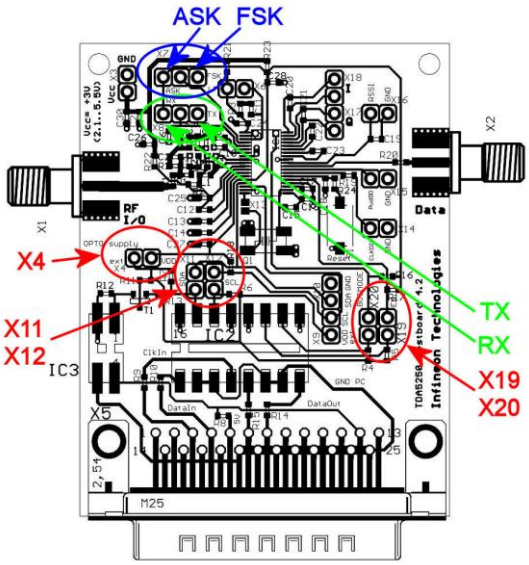

Figure 2: Jumpers

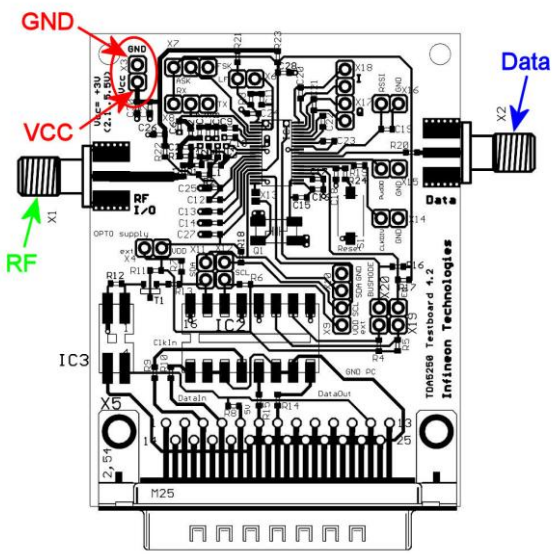

Figure 3: Connectors

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3 Using the TDA525X UWLink Adapter-Board together with the UWLink Mainboard as interface between the TDA525X-Board and a Windows PC

Before using the UWLink Mainboard and TDA525X UWLink Adapter-Board as interface, the required software, which can be downloaded from the Infineon Web page (see link below), has to be installed.

Please follow this step-by-step approach when you start up your **TDA525X-UWLink**-Set for the first time:

Important Note: The **TDA525X Explorer** Windows Software requires the **DAS** (**D**evice **A**ccess **S**erver) and the **SIB-Server** services running in the background. Both are automatically installed while following the steps below.

Step 1 – Installation of the TDA525X-Explorer

- Go to www.**infineon.com/TDA525X** and download the latest **TDA525X-Explorer** Installation Package (e.g. **TDA525X_Explorer_E1.1.05.zip**)
- Extract the ZIP-archive to a temporary directory on your PC.
- Open the sub-directory **1_DAS** and execute **DAS_setup.exe** and follow the on-screen instructions.
- Execute **TDA525X_Explorer_E1.1.05.exe** and follow the on-screen instructions.
- Execute the **NextGenLoader** and start the installation of the **SIB-Server** by just double-clicking at the **SIB Server** button (see 0) and follow the on-screen instructions.

Figure 4: SIB-Server button

Step 2 – Usage of the TDA525X Explorer

- Start the **TDA525X Explorer** by double-clicking at the **TDA525X Explorer** button (see Figure 5).
- Click to **OPEN** in the **Wizard**-tab to start the communication (see Figure 6).
- Now you are ready to configure the **TDA525X**: Either by changing the settings in the **Wizard**-tab of the **TDA525X Explorer** (see Figure 7), or by changing the bit values of each register directly in the **Registers**-tab (see Figure 9). CAUTION: If you choose RX/TX and ASK/FSK “Register Controlled” (see Figure 8) it is strongly recommend to remove the jumper of the RX/TX-multi-pin connector and ASK/FSK-multi-pin connector to avoid conflicting hardware and software settings and harming of the **TDA525X**!

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- Furthermore you can read the **SFR Status register** and **SFR ADC register** at the **Explore**-tab. See the **RSSI Voltage and Vcc Measurement-** and **Data valid decision**-fields in the **Explore**-tab (see Figure 10).
- The registers settings can be saved as config-file (*_spi.def) by clicking at the "**Save**"-button in the **Register**-tab on the one hand (see Figure 11). Already available config-files can be loaded by clicking at the "**File-Open**"-button on the other hand (see Figure 12)

Figure 5: TDA525X Explorer button

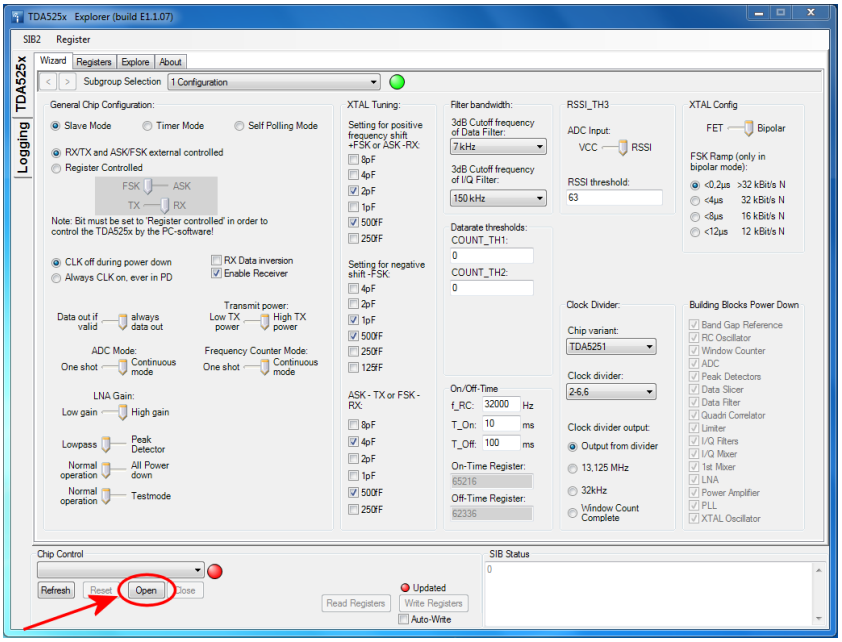

Figure 6: TDA525X Explorer, Open button

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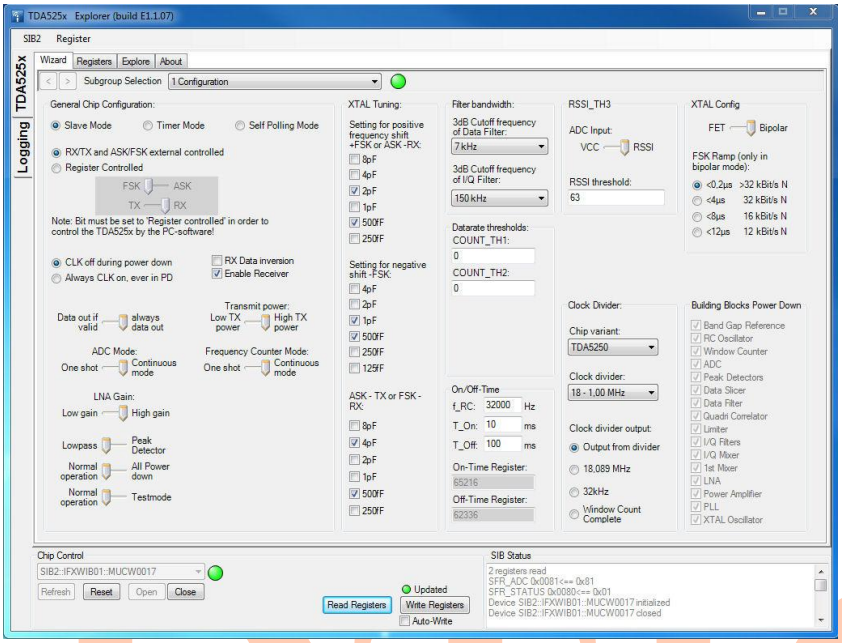

Figure 7: TDA525X Explorer, Wizard tab

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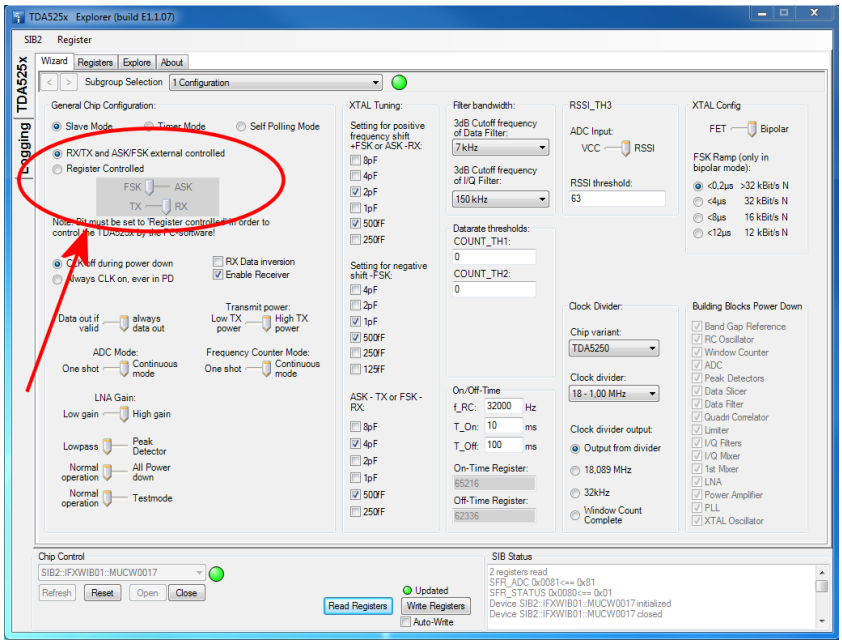

Figure 8: RX/TX and ASK/FSK external controlled or register controlled

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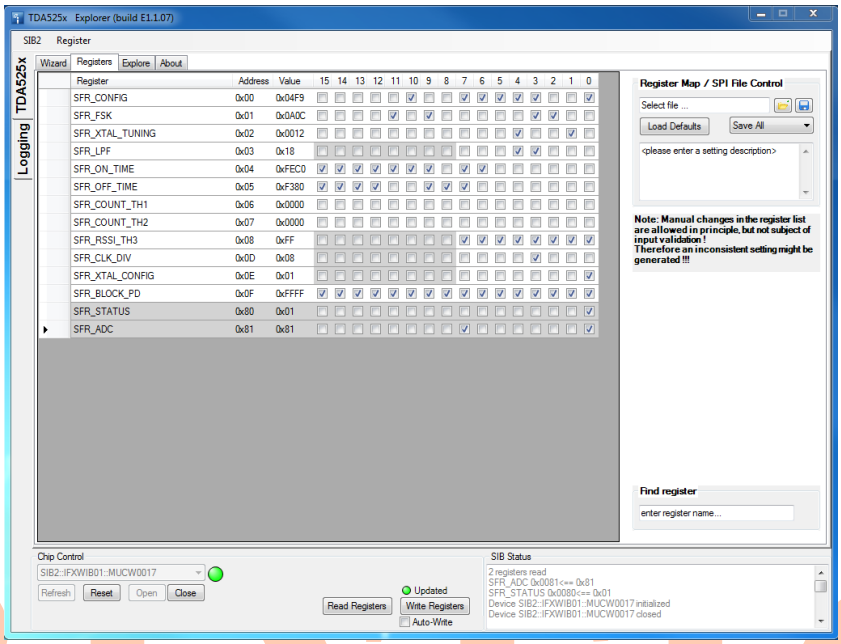

Figure 9: TDA525X Explorer, Register tab

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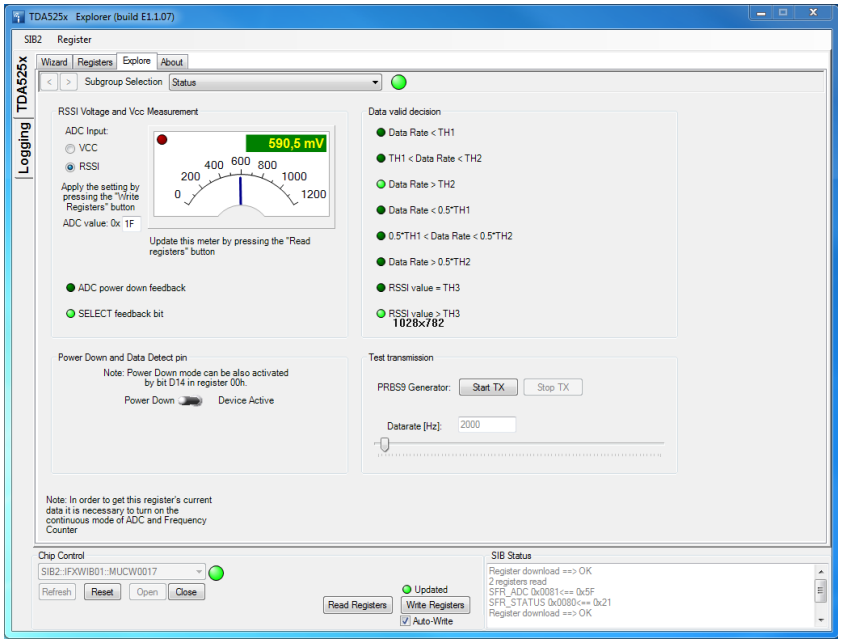

Figure 10: TDA525X Explorer, Explorer tab

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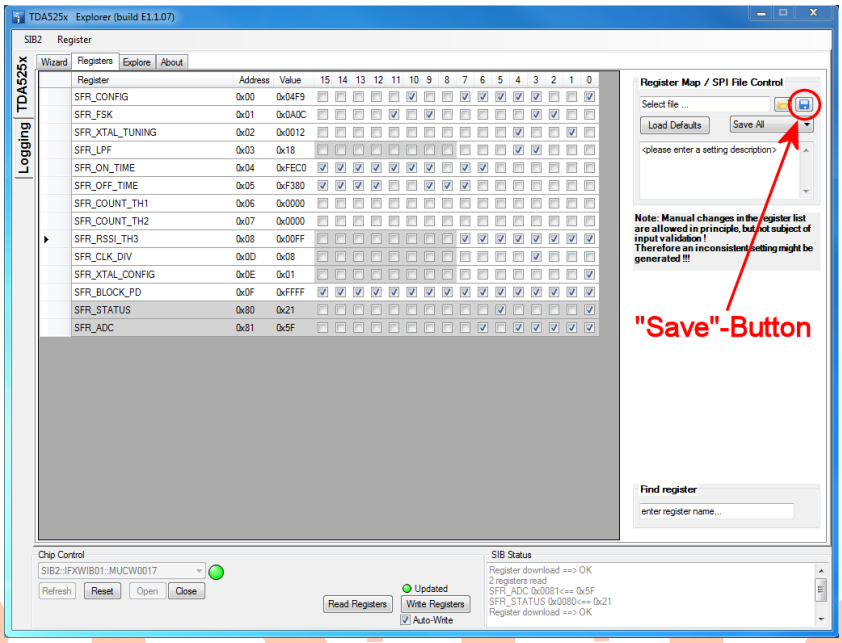

Figure 11: Save button

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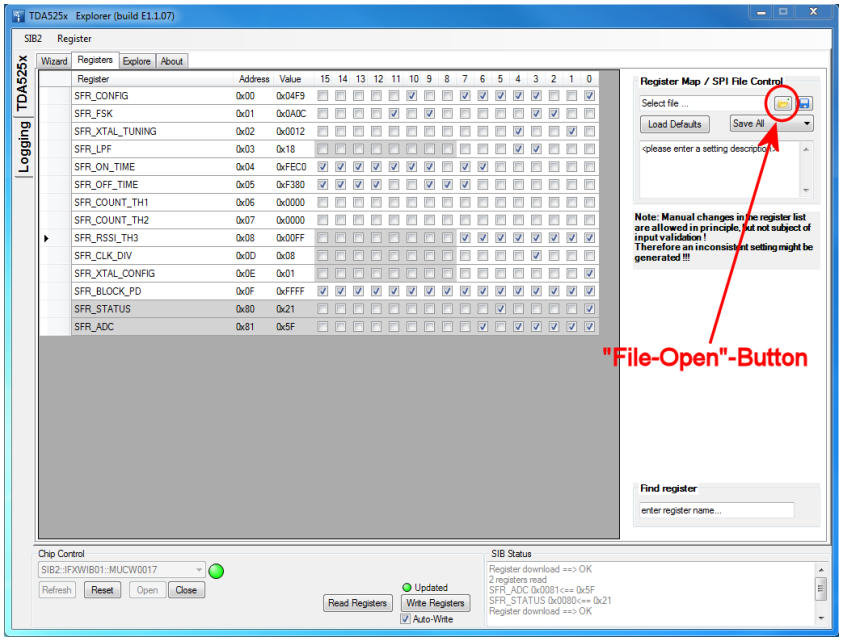

Figure 12: File-Open button

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Step 3 – Configure the TDA525X Board by the TDA525X-Explorer via the USB connector of the PC

- Connect the **TDA525X Evaluation Board** to the **TDA525X UWLink Adapter-Board** and the **TDA525X UWLink Adapter-Board** to the **UWLink Mainboard**.
- Close jumper X4, X11, X12, X19 and X20 (see Figure 2).
  CAUTION: If there is just a 1-pole pin connector instead of X4 the external power supply (typically 3V, see next instruction below) has also to be applied to this 1-pole pin connector.
- The **TDA525X Evaluation Board** has to be supplied by an external power supply of 3V (2.1V to 5V) via connector X3. For the polarity of X3 see also Figure 3.
- Connect the **UWLink Mainboard** to the USB-connector of your PC.
- Start the **TDA525X Explorer** by double-clicking at the **TDA525X Explorer** button (see Figure 5).
- Click to **OPEN** in the **Wizard**-tab to start the communication (see **Error! Reference source not found.**).
- It is strongly recommended to remove the jumper of the RX/TX-multi-pin connector and ASK/FSK-multi-pin connector before you select “RX/TX and ASK/FSK Register Controlled” (see 0) to avoid conflicting hardware and software settings and harming of the **TDA525X**! If you select “RX/TX and ASK/FSK external controlled” (see Figure 8) you have to set the jumper of the ASK/FSK- and RX/TX-multi-pin connector according the desired mode (see Figure 2).

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- Apply an antenna or RF-signal generator on the 50 Ω RF-connector (X1; see Figure 3) if the RX-mode is selected. Use an ASK-modulated or FSK-modulated RF-signal according the selected mode.
- Apply an antenna or Spectrum-Analyzer to be able to measure the spectrum, for instance, on the 50 Ω RF-connector (X1; see Figure 3) if the TX-mode is selected (via RX/TX-Jumper).
  CAUTION: Applying a signal, from a RF-signal generator for instance, in TX-mode could possibly damage the power amplifier output of the **TDA525X**!
- Connect the Data Input/Output (X2; see Figure 3) to an Oscilloscope, for instance, to be able to measure the data signal, in case of RX-mode (via RX/TX-Jumper) is selected.
- Apply a data signal or just a rectangular signal on the Data Input/Output (X2; see Figure 3) if TX-mode is selected. For data signal Low- and High-level see Data Sheet.

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